

Attachment 1

U.S. Patent and Trademark Office,  
Commissioner of Patents and Trademarks,  
Washington, D.C. 20231

Attention:  
**Examiner, Timothy C. Vanoy,**  
**Supervisor: Stanley Silverman**

Art Unit: 1754

Appl. #: 09/525,176  
Filing date: 03/14/2000  
Continuation in Part of Application 08/595,040  
Now US Patent 6,090,312

Applicants:  
**Dr. Savvas Vasileiadis,**  
**Dr. Zoe Ziaka**

Zivatech Institute,  
15549 Dearborn street,  
North Hills, CA 91343  
tel. & fax: 818-893-4292  
email: vas1cs@msn.com,  
zoeziaka@msn.com

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Response to Office Action, mailed Jan/09/2003

Title: PERMREACTOR AND SEPARATOR TYPE FUEL PROCESSORS FOR  
PRODUCTION OF HYDROGEN AND HYDROGEN, CARBON OXIDES MIXTURES

This is our response to the last Office Action mailed on Jan. 09, 2003 with regard to patent application #09/525,176, filed on 03/14/2000. The applicants have followed the instructions of the Examiner of the Last Office Summary Action and have made the necessary amendments into the application for allowance.

Claims 134, 135, 136, 137, 152, 153, 154, 155, 170, 171, 172, 173 have been amended according to the instructions and the applicants petition and appeal for their allowance at this time. The inventors support these claims to be patentable. There is no reason for obviousness rejection of these claims. This is because the Japanese Patent Document No. 04-182,302A claims a method of manufacturing hydrogen taking place in

two different vessels and not in one integrated vessel as the inventor's current invention does. Moreover, in the Japanese document the stream which is passed via the cooler for the removal of water from hydrogen is the stream which was rejected by the membrane. However, in this current invention the stream which is treated and separated by the two membranes is the stream that permeates through the membranes, first via the most inner membrane and then via the next inner membrane. This is an additional great distinction between the two patents. Moreover, the disclosed and claimed process can utilize catalyst in more than one regions, while the Japanese process encloses catalyst only in one region as a regular fixed bed catalytic reactor. Moreover, the distinctions of the invented process from previous art including this Japanese document are summarized in a detailed manner in our Response to Office Action of 01/29/2002 mailed to USPTO on May 28, 2002. These distinctions are maintained.

The inventors based on the above, petition for the allowance and issuance of this patent application and the accompanied claims.

## **REMARKS SECTION**

The new amended claims 134, 135, 136, 137, 152, 153, 154, 155, 170, 171, 172, 173 submitted with this amended application replace the claims of the original specification of 3/14/2000 (old claims 1-45) and the claims of the consecutive submitted specifications (old claims 1-133). Claims 138, 141, 143-151, 156-169, 174-181 drawn to inventions non-elected with traverse in the Amendment dated Nov.1, 2002 are cancelled. The inventors are requesting from USPTO to renumber the elected amended claims 134 to 173 above with the numbers from 1 to 12. Claims 134, 152, and 170 are independent claims and the remaining are dependent claims. The new claims refer to the elected and invented processes disclosed within the patent application. A clean and marked up copy of the amended claims are submitted within.

The two inventors Dr. Vasileiadis and Dr. Ziaka of this amended application are joint inventors in all disclosed amended claims submitted 134 to 172.

The new amended specification contains no new matter, is double spaced and is divided into 78 paragraphs. This new specification replaces the previous submitted original specification. The first three reactions mentioned in the original specification have been numbered (1) to (3). In the later text of the specification, some of these numbers were misspelled and they have been corrected in the current specification and are shown in the marked up copy of the specification.

A new Oath/Declaration completed with the requested information and signed by both inventors is submitted per the Examiner's request.

The information disclosure statement has been completed with the requested information and has been mailed to the USPTO at an earlier date.

The inventors have already submitted Drawings 1 to 13 of the application in the USPTO with the original filled specification of 3/14/2000.